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**UTILITY PATENT APPLICATION TRANSMITTAL**

(Only for new nonprovisional applications under 37 CFR 1.53(b))

Attorney Docket No. 74451.P114Total Pages 3First Named Inventor or Application Identifier Jonathan J. HullExpress Mail Label No. EL143568321US

ADDRESS TO: Assistant Commissioner for Patents  
 Box Patent Application  
 Washington, D. C. 20231

**APPLICATION ELEMENTS**

See MPEP chapter 600 concerning utility patent application contents.

1. X Fee Transmittal Form  
(Submit an original, and a duplicate for fee processing)
2. X Specification (Total Pages 26)  
(preferred arrangement set forth below)
  - Descriptive Title of the Invention
  - Cross References to Related Applications
  - Statement Regarding Fed sponsored R & D
  - Reference to Microfiche Appendix
  - Background of the Invention
  - Brief Summary of the Invention
  - Brief Description of the Drawings (if filed)
  - Detailed Description
  - Claims
  - Abstract of the Disclosure
3. X Drawings(s) (35 USC 113) (Total Sheets 7)
4. X Oath or Declaration (Total Pages 5)
  - a.      Newly Executed (Original or Copy)
  - b.      Copy from a Prior Application (37 CFR 1.63(d))  
(for Continuation/Divisional with Box 17 completed) (**Note Box 5 below**)
  - i.      **DELETIONS OF INVENTOR(S)** Signed statement attached deleting inventor(s) named in the prior application, see 37 CFR 1.63(d)(2) and 1.33(b).
5.      Incorporation By Reference (useable if Box 4b is checked)  
The entire disclosure of the prior application, from which a copy of the oath or declaration is supplied under Box 4b, is considered as being part of the disclosure of the accompanying application and is hereby incorporated by reference therein.
6.      Microfiche Computer Program (Appendix)

jc784 U.S. PTO  
 03/15/00

jc530 U.S. PTO  
 09/526031  
 03/15/00

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7. ☐ Nucleotide and/or Amino Acid Sequence Submission  
(if applicable, all necessary)  
a. ☐ Computer Readable Copy  
b. ☐ Paper Copy (identical to computer copy)  
c. ☐ Statement verifying identity of above copies

**ACCOMPANYING APPLICATION PARTS**

8. ☐ Assignment Papers (cover sheet & documents(s))  
9. ☐ a. 37 CFR 3.73(b) Statement (where there is an assignee)  
☐ b. Power of Attorney  
10. ☐ English Translation Document (if applicable)  
11. ☒ a. Information Disclosure Statement (IDS)/PTO-1449  
☒ b. Copies of IDS Citations  
12. ☐ Preliminary Amendment  
13. ☒ Return Receipt Postcard (MPEP 503) (Should be specifically itemized)  
14. ☐ a. Small Entity Statement(s)  
b. Statement filed in prior application, Status still proper and desired  
15. ☐ Certified Copy of Priority Document(s) (if foreign priority is claimed)  
16. ☐ Other: \_\_\_\_\_  
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17. If a **CONTINUING APPLICATION**, check appropriate box and supply the requisite information:  
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12/01/97

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UNITED STATES PATENT APPLICATION  
FOR  
MULTIMEDIA DOCUMENT ANNOTATION

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## MULTIMEDIA DOCUMENT ANNOTATION

### FIELD OF THE INVENTION

5

The present invention relates generally to field of multimedia creation and presentation. More specifically, the present invention is directed to adding multimedia annotations to paper or electronic documents.

10

### BACKGROUND

15

Multimedia is a term used to describe the ability to combine different kinds of information storage and/or communication media, such as sounds, video, text, music, animations, charts, maps, etc., into colorful, interactive presentations, business applications, games, etc. Examples of information storage media include books, phonograph records, audio and videotapes, microfilm, and magnetic and optical disks.

20

Audio and video clips require enormous amounts of storage space, and for this reason, until recently, programs could not use any but the most rudimentary animations and sounds. The enormous storage capacity of current storage devices such as the compact disc read only memory (CD-ROM) changes all that. When using simultaneous clips from several different media, the user's senses of sight, sound, and touch are merged into an astonishingly real experience.

25

Faster computers and rapid proliferation of multimedia programs will probably forever change the way people get information. The computer's ability to instantly retrieve a tiny piece of information from the midst of a huge

mass of data has always been one of its most important uses. Since video and audio clips can be stored alongside text on a single CD-ROM disc, a whole new way of exploring a subject is possible. By using hyperlinks, materials can be presented to people so that they can peruse it in a typically human manner, by association.

Although there are technologies today that allow for the implementation of multimedia, current implementations do not address the incorporation of multimedia with the traditional form of office communication, the paper document. Since most communications within an office today are still made with the traditional paper documents such as memos and notes, it would be advantageous to be able to add multimedia to the paper documents and enable the office user to convey the sound and emotion with the paper document.

## SUMMARY OF THE INVENTION

A method and apparatus for adding multimedia annotations to paper documents is disclosed. In one embodiment, a multimedia annotation is created  
5 for a paper document. The multimedia annotation is combined with the paper document to form a multimedia document.

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## BRIEF DESCRIPTION OF THE DRAWINGS

The present invention is illustrated by way of example in the following drawings in which like references indicate similar elements. The following  
5 drawings disclose various embodiments of the present invention for purposes of illustration only and are not intended to limit the scope of the invention.

**Figure 1** illustrates a flow diagram of one embodiment of a process of annotating.

10 **Figure 2** depicts one embodiment of a multi-function system for annotating documents with the multimedia information.

**Figure 3** illustrates an exemplary document with a multimedia annotation represented with a bar code.

15 **Figure 4** illustrates an exemplary email message and a Uniform Resource Locator (URL) that provides a link to the multimedia content.

**Figure 5** illustrates an exemplary embodiment of a system that provides for adding multimedia annotation with emotional content to a document.

**Figure 6** illustrates one embodiment of a computer system.

20 **Figure 7** illustrates one embodiment of a computer-readable medium containing various sets of instructions, code sequences, configuration information, and other data used by a computer or other processing device.

## DETAILED DESCRIPTION

A method and apparatus for adding multimedia annotations to paper documents is disclosed. In the following description, for purposes of  
5 explanation, specific nomenclature is set forth to provide a thorough understanding of the present invention. However, it will be apparent to one skilled in the art that these specific details are not required in order to practice the present invention. For example, the sending of the multimedia document by email is described with reference to an Internet. However, the same techniques  
10 can easily be applied to other types of network.

Some portions of the detailed descriptions that follow are presented in terms of algorithms and symbolic representations of operations on data bits within a computer memory. These algorithmic descriptions and representations are the means used by those skilled in the data processing arts to most  
15 effectively convey the substance of their work to others skilled in the art. An algorithm is here, and generally, conceived to be a self-consistent sequence of steps leading to a desired result. The steps are those requiring physical manipulations of physical quantities. Usually, though not necessarily, these quantities take the form of electrical or magnetic signals capable of being stored,  
20 transferred, combined, compared, and otherwise manipulated. It has proven convenient at times, principally for reasons of common usage, to refer to these signals as bits, values, elements, symbols, characters, terms, numbers, or the like.

It should be borne in mind, however, that all of these and similar terms are to be associated with the appropriate physical quantities and are merely  
25 convenient labels applied to these quantities. Unless specifically stated otherwise as apparent from the following discussion, it is appreciated that throughout the description, discussions utilizing terms such as "processing" or



"computing" or "calculating" or "determining" or "displaying" or the like, refer to the action and processes of a computer system, or similar electronic computing device, that manipulates and transforms data represented as physical (electronic) quantities within the computer system's registers and memories into  
5 other data similarly represented as physical quantities within the computer system memories or registers or other such information storage, transmission or display devices.

The present invention also relates to apparatus for performing the operations herein. This apparatus may be specially constructed for the required  
10 purposes, or it may comprise a general-purpose computer selectively activated or reconfigured by a computer program stored in the computer. Such a computer program may be stored in a computer readable storage medium, such as, but is not limited to, any type of disk including floppy disks, optical disks, CD-ROMs, and magnetic-optical disks, read-only memories (ROMs), random  
15 access memories (RAMs), EPROMs, EEPROMs, magnetic or optical cards, or any type of media suitable for storing electronic instructions, and each coupled to a computer system bus.

The algorithms and displays presented herein are not inherently related to any particular computer or other apparatus. Various general-purpose  
20 systems may be used with programs in accordance with the teachings herein, or it may prove convenient to construct more specialized apparatus to perform the required method steps. The required structure for a variety of these systems will appear from the description below. In addition, the present invention is not described with reference to any particular programming language. It will be  
25 appreciated that a variety of programming languages may be used to implement the teachings of the invention as described herein.

## Overview

In one embodiment, a method and apparatus for creating and adding multimedia annotation to paper or electronic documents to create a multimedia document is described.

5       **Figure 1** is a flow diagram of one embodiment of a process for adding multimedia contents to a document. Referring to Figure 1, at block 105, the user creates a document. In one embodiment, the document is a paper document (e.g., hand written document, a document created through the use of a typewriter, a printed copy, etc.). The user then generates a multimedia  
10       annotation to accompany the document, as shown in block 110. In one embodiment, the multimedia annotation can be an audio sound, a video clip, a combination of both the audio sound and the video clip, etc. The multimedia annotation can be generated at the same time the document is created or at a different time. At block 115, the annotation is associated with the document to  
15       create a multimedia document. In one embodiment, the annotation is placed on an area of the document. The annotation may be in different forms, such as, for example, a bar code containing an audio message or a URL indicating a link to a video clip.

In one embodiment, the user specifies a recipient to receive the  
20       multimedia document. The recipient may be specified by the user entering the recipient's address such as, for example, an Internet email address. The email message is generated and sent to the recipient, as shown at block 120.

Alternatively, the user may choose to specify a recipient for the document at another time. At block 125, the document and the annotation are saved in a  
25       storage area. The document and the annotation can be saved together or they can be saved in separate storage areas.

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Figure 2 shows one embodiment of a multi-function system. In one embodiment, the multi-function system 202 can be a photocopier equipped with a display console 204 and a keypad 205. The multi-function system 202 may include a microphone 210, a video camera 215, and a disk drive 220 to accept  
5 input generated from a different system. Furthermore, in one embodiment, the multi-function system 202 includes hardware for digitizing the audio and/or video multimedia inputs. The formats of the audio sound and the video clip may include, for example, MP3 audio (MPEG audio layer 3) and MPEG video (a digital video compression standards from the Motion Picture Experts Group).

10 In one embodiment, the user generates the multimedia annotation while using the multi-function system 202 to copy a paper document. While copying the paper document, the multi-function system 202 captures an image of the paper document and saves it on the server machine 225 automatically. In another embodiment, the user may generate the document in electronic form  
15 and then used the electronic form of the document with the multi-function system 202.

The server machine 225 is coupled to the multi-function system 202 through a network such as, for example, a local area network. The server machine 225 is used to store the multimedia documents so that it can be  
20 retrieved by the user or by the person to whom the user sends the multimedia document. In one embodiment, the console 204 is used to specify the recipient(s) of the multimedia document. The automatic saving feature of the system allows users to save document images while requiring no decision on the part of the user.

25 In one embodiment, the microphone 210 is automatically activated when the user selects a copy function on the multi-function system 202. The user

generates the multimedia annotation by speaking to the microphone 210 on the multi-function system 202.

In another embodiment, the user may prepare the multimedia annotation prior to using the multi-function system 202. For example, the user generates  
5 the multimedia annotation on a workstation, records it on a portable storage device such as, for example, a floppy disk, and physically carries the portable storage device to the multi-function system 202. Upon inserting the portable storage device in the drive 220 on the copier, the user is presented with an interface on the console 204. In one embodiment, the interface lists all the  
10 available multimedia annotations stored on the portable storage device and allows the user to review and select them. The user may interact with the interface through a user controllable device coupled to the multi-function system 202, such as, for example, a mouse. Additionally, a keyboard 225 may be provided to allow the user to perform any editing functions, such as, for  
15 example, specifying or changing the names of the recipients for the documents. The interface of the multi-function system 202 may provide a mechanism for the user to associate a selected multimedia annotation with the document. For example, a drag-and-drop function to indicate which multimedia annotation should be applied to the document being copied.

20 In one embodiment, the user may use the keyboard 225 in conjunction with the console 204 to indicate information about the recipient of the document, such as, for example, names, email address, phone number, fax number, etc.

The server machine 225 may be configured to allow access only after  
25 authentication. For example, only the recipient who possesses a valid user identification and/or password may access the corresponding multimedia documents stored on the server machine 225. In one embodiment, to provide

additional security, the multimedia document may also be encrypted. For example, the multi-function system 202 may utilize a digital key belonging to the recipient to encrypt the document. In this manner, only those individuals having the recipient digital key may decrypt the code and recover the original document.

In one embodiment, the multimedia document generated by the multi-function system 202 can be a physical document such as, for example, a paper, a transparency, etc. This may be in addition to the document image that was automatically stored. For example, a paper document generated by the copier function of the multi-function system 202 may contain a plain text representation for a Uniform Resource Locator (URL) that indicates the network address where the multimedia annotation is stored. An individual may distribute this paper version of the multimedia document to the recipients. Additionally, an individual may decide to notify the recipients by email that provides them with the URL for the multimedia document. In another embodiment, the URL where the multimedia document is stored can be represented by a bar code generated by the multi-function system 202 and printed on the document.

**Figure 3** illustrates an exemplary embodiment of a document with the multimedia annotation represented as a bar code. In this case, the document can be a paper document and the complete multimedia annotation can be represented with bar code 310 printed on the face of the document. The multimedia annotation can be retrieved by decoding the bar code 310. In alternative embodiments, the multimedia annotation may be emailed using digital links as described in U.S. Patent number 5,337,362 issued to Gormish et al. on August 9, 1994.



In one embodiment, the multi-function system can contact the recipients by telephone when a multimedia document is sent to the recipient. The multi-function system may employ digitized voice and notify the recipients that they have documents waiting for them in a multimedia message queue on the server machine. The recipients can inspect the queue and retrieve the appropriate multimedia documents. Alternatively, the recipient may receive no notification. In this case, the system may place the multimedia document in the recipient's message queue for later inspection. The recipients may retrieve the documents in several ways. The users may periodically inspect their message queue on the server machine and download their most recent messages, much the same way voice mail systems operate.

In one embodiment, the server machine includes a retrieval engine that allows the users to search for archived multimedia documents based on their contents. In this case, the multimedia documents were created from an image of the paper documents. The multimedia documents may be subjected to an optical character recognition (OCR) process to help with the content-based search. In another embodiment, when the multimedia annotation is an audio clip, representative audio tracks are generated for each user on the system using speech recognition software such as, for example, ViaVoice from IBM of Armonk, New York. The multimedia documents can be searched based on the user's voice as recorded in the audio message. The user's voice can be recognized using a speaker or voice identification software such as, for example, WaveMakers from Waver Makers Research Inc.. In another embodiment, when the multimedia annotation is a video clip, a video track containing an image of the user can be used as input to face recognition techniques. These various embodiments just described allow the recipients to search for the multimedia annotations by their textual content as well as by the identity of the user, either

by the user's voice or by the user's image. In other embodiments, the multimedia documents can be searched using parameters such as, for example, the dates of recording, storage, and transmission of the message.

In another embodiment, the multi-function system of **Figure 2** can  
5 operate as a fax machine and captures an image of a fax document while sending the fax. In this case, the document printed on the receiver's fax machine can contain a printed plain text URL, a bar code representation for the URL, or a bar code that represents the entire contents of the message. Similarly, the multi-function system of **Figure 2** can operate as a scanner. As discussed above, the  
10 console of the multi-function system can be used to specify the recipients of the scanned document. Additionally, the console is used to as a means to notify the recipients as well as a means to access the server machine. Still in another embodiment, the multi-function system of **Figure 2** can operate as a printer accepting print request from the user's workstation. In this case, the  
15 workstation from which the document is printed is equipped with the necessary multimedia input devices to allow the user to generate multimedia annotations. When the document is to be printed from the user's workstation, the user added the multimedia annotation to the document. A plain text URL or a bar code that represents the URL or the complete multimedia annotation can be added by the  
20 user in the same manner previously described.

Using the method and apparatus described herein provide an individual a way for communicating emotions through a paper document. For example, **Figure 5** shows a user adding a highly emotional message 505 to a document. The audio sound makes the user's meaning abundantly clear to the recipient.

25 **Figure 6** illustrates an embodiment of a computer system that can be used to perform operations described herein. The various components shown in **Figure 6** are provided by way of example. Certain components of the computer



in **Figure 6** can be deleted from the addressing system for a particular implementation of the invention. The computer shown in **Figure 6** may be any type of computer including a general-purpose computer.

**Figure 6** illustrates a system bus 600 to which various components are coupled. A processor 602 performs the processing tasks required by the computer. Processor 602 may be any type of processing device capable of implementing the steps necessary to perform the operations discussed above. An input/output (I/O) device 603 is coupled to bus 600 and provides a mechanism for communicating with other devices coupled to the computer. For example, the user can use the I/O device 603 to specify the name and email address of the recipient to whom the multimedia document is to be sent. A graphics display adapter 604 is connected to the bus to receive display data generated by the processor 602 and store the display data in a display buffer. A read-only memory (ROM) 606 and a random access memory (RAM) 608 are coupled to bus 600 and provide a storage mechanism for various data and information used by the computer, such as, for example, the interface code that allow the user to interact with the computer. Although ROM 606 and RAM 608 are shown coupled to bus 600, in alternate embodiments, ROM 606 and RAM 608 are coupled directly to processor 602 or coupled to a dedicated memory bus (not shown).

A video console 610 is coupled to the graphics display adapter 604 and displays various information and data stored in the display buffer to the user of the computer. The data display may include the different multimedia annotations stored on the portable storage device. A disk drive 612 is coupled to bus 600 and provides a facility for the user to load multimedia annotations previously generated on the user's workstation.

**Figure 7** illustrates an embodiment of a computer-readable medium 700 containing various sets of instructions, code sequences, configuration information, and other data used by a computer or other processing device. The embodiment illustrated in **Figure 7** is suitable for use with the multimedia annotation method described above. The various information stored on medium 700 is used to perform various data processing operations. Computer-readable medium 700 is also referred to as a processor-readable medium. Computer-readable medium 700 can be any type of magnetic, optical, or electrical storage medium including a diskette, magnetic tape, CD-ROM, memory device, or other storage medium.

Computer-readable medium 700 includes interface code 702 that controls the flow of information between various devices or components in the computer system. Interface code 702 may control the transfer of information within a device (e.g., between the processor and a memory device), or between an input/output port and a storage device. Additionally, interface code 702 may control the transfer of information from one device to another.

Computer-readable medium 700 also includes the multimedia annotation generation application 704 that is used to generate the audio and / or video messages. Other codes stored on the computer-readable medium 700 may include the email message generation code 706 to notify the recipient of the existence of the multimedia document, a bar code generation code 708 to generate a bar code representation of an audio message, and the image generation code 712 that generates an image of the paper document.

From the above description and drawings, it will be understood by those of ordinary skill in the art that the particular embodiments shown and described are for purposes of illustration only and are not intended to limit the scope of the invention. Those of ordinary skill in the art will recognize that the invention

may be embodied in other specific forms without departing from its spirit or essential characteristics. References to details of particular embodiments are not intended to limit the scope of the claims.

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## CLAIMS

What is claimed is:

- 1 1. A method comprising:  
2 creating a multimedia annotation for a paper document; and  
3 combining the paper document and the multimedia annotation to form a  
4 first multimedia document.
- 1 2. The method of claim 1, wherein the multimedia annotation is represented  
2 as a first bar code printed on the multimedia document.
- 1 3. The method of claim 2, wherein the first bar code encodes an audio sound.
- 1 4. The method of claim 1, wherein a location indicator associated with the  
2 multimedia annotation is placed on the multimedia document, wherein  
3 the location indicator indicates where the multimedia annotation can be  
4 retrieved and played.
- 1 5. The method of claim 4, wherein the location indicator comprises a first  
2 Uniform Resource Locator (URL), and a second bar code, wherein the  
3 first URL is indicated in plain text, and wherein the second bar code  
4 represents the first URL.

- 1 6. The method of claim 4, wherein the multimedia annotation comprises an  
2 audio sound, a video clip, and a combination of both the audio sound and  
3 the video clip.
- 1 7. The method of claim 1, wherein the first multimedia document is a paper  
2 document.
- 1 8. The method of claim 1, further comprising:  
2 generating an image of the paper document;  
3 combining the image of the paper document and the multimedia  
4 annotation to form a second multimedia document; and  
5 storing the image of the paper document and the multimedia annotation.
- 1 9. The method of claim 8, wherein the second multimedia document is  
2 represented as a second Uniform Resource Locator (URL), and wherein  
3 the image of the paper document and the multimedia annotation is  
4 accessed with the second URL.
- 1 10. The method of claim 9, wherein a third bar code is used to represent the  
2 second URL.
- 1 11. The method of claim 8, further comprising sending the second multimedia  
2 document to a recipient by electronic mail.

- 1 12. The method of claim 11, wherein the recipient receives the image of the  
2 paper document and the multimedia annotation in the form of Multi-  
3 purpose Internet Mail Extension (MIME).
- 1 13. A machine-readable medium providing instructions, which when executed  
2 by a set of one or more processors, cause said set of processors to perform  
3 the following:  
4 creating a multimedia annotation for a paper document; and  
5 combining the paper document and the multimedia annotation to form a  
6 first multimedia document.
- 1 14. The machine-readable medium of claim 13, wherein the multimedia  
2 annotation is represented as a first bar code printed on the multimedia  
3 document.
- 1 15. The machine-readable medium of claim 14, wherein the first bar code  
2 encodes an audio sound.
- 1 16. The machine-readable medium of claim 13, wherein a location indicator  
2 associated with the multimedia annotation is placed on the multimedia  
3 document, wherein the location indicator indicates where the multimedia  
4 annotation can be retrieved and played.
- 1 17. The machine-readable medium of claim 16, wherein the location indicator  
2 comprises a first Uniform Resource Locator (URL), and a second bar

- 3 code, wherein the first URL is indicated in plain text, and wherein the  
4 second bar code represents the first URL.
- 1 18. The machine-readable medium of claim 16, wherein the multimedia  
2 annotation comprises an audio sound, a video clip, and a combination of  
3 both the audio sound and the video clip.
- 1 19. The machine-readable medium of claim 13, wherein the first multimedia  
2 document is a paper document.
- 1 20. The machine-readable medium of claim 13, further comprising:  
2 generating an image of the paper document;  
3 combining the image of the paper document and the multimedia  
4 annotation to form a second multimedia document; and  
5 storing the image of the paper document and the multimedia annotation.
- 1 21. The machine-readable medium of claim 20, wherein the second multimedia  
2 document is represented as a second Uniform Resource Locator (URL),  
3 and wherein the image of the paper document and the multimedia  
4 annotation is accessed with the second URL.
- 1 22. The machine-readable medium of claim 21, wherein a third bar code is  
2 used to represent the second URL.
- 1 23. The machine-readable medium of claim 20, further comprising sending the  
2 second multimedia document to a recipient by electronic mail.

1 24. The machine-readable medium of claim 23, wherein the recipient receives  
2 the image of the paper document and the multimedia annotation in the  
3 form of Multi-purpose Internet Mail Extension (MIME).

1 25. A computer system, comprising:  
2 a bus;  
3 a data storage device coupled to the bus; and  
4 a processor coupled to the data storage device, the processor operable to  
5 receive instructions which, when executed by the processor, cause the  
6 processor to perform a method comprising:  
7 creating a multimedia annotation for a paper document; and  
8 combining the paper document and the multimedia annotation to  
9 form a first multimedia document.

1 26. The computer system of claim 25, wherein the multimedia annotation is  
2 represented as a first bar code printed on the multimedia document;

1 27. The computer system of claim 26, wherein the first bar code encodes an  
2 audio sound.

1 28. The computer system of claim 25, wherein a location indicator associated  
2 with the multimedia annotation is placed on the multimedia document,  
3 wherein the location indicator indicates where the multimedia annotation  
4 can be retrieved and played.



1 29. The computer system of claim 28, wherein the address comprises a first  
2 Uniform Resource Locator (URL), and a second bar code, wherein the  
3 first URL is indicated in plain text, and wherein the second bar code  
4 represents the first URL.

1 30. The computer system of claim 28, wherein the multimedia annotation  
2 comprises an audio sound, a video clip, and a combination of both the  
3 audio sound and the video clip.

1 31. The computer system of claim 25, wherein the first multimedia document is  
2 a paper document.

1 32. The computer system of claim 25, further comprising:  
2 generating an image of the paper document;  
3 combining the image of the paper document and the multimedia  
4 annotation to form a second multimedia document; and  
5 storing the image of the paper document and the multimedia annotation.

1 33. The computer system of claim 32, wherein the second multimedia  
2 document is represented as a second Uniform Resource Locator (URL),  
3 and wherein the image of the paper document and the multimedia  
4 annotation is accessed with the second URL.

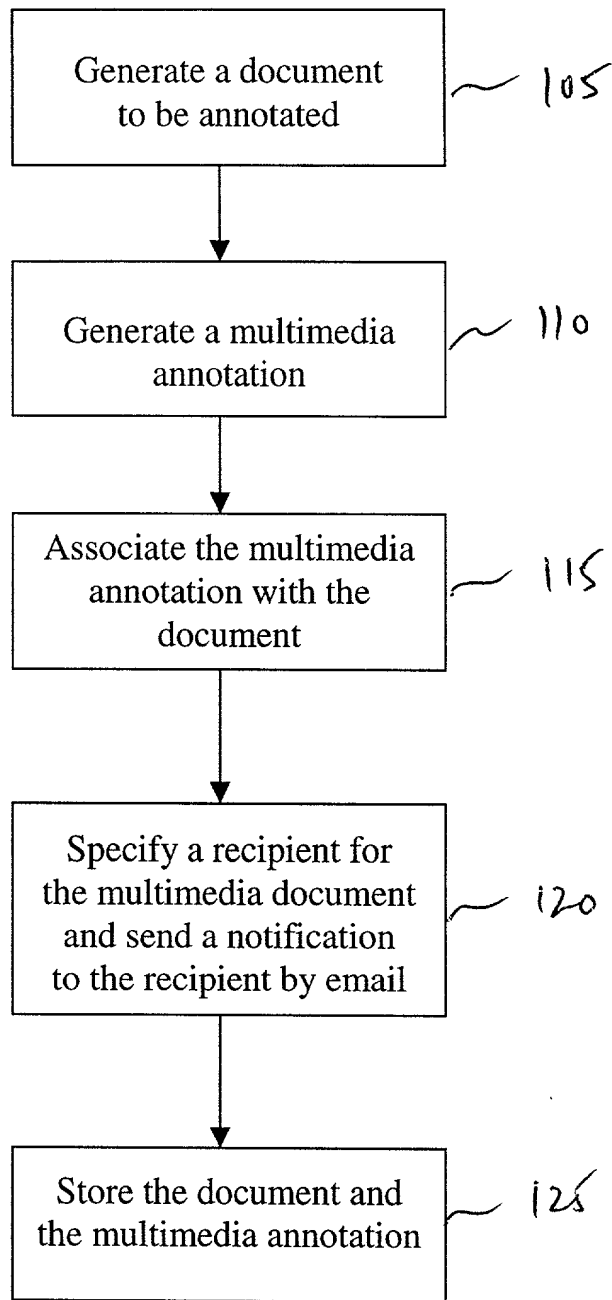
1 34. The computer system of claim 33, wherein a third bar code is used to  
2 represent the second URL.

- 1 35. The computer system of claim 32, further comprising sending the second  
2 multimedia document to a recipient by electronic mail.
- 1 36. The computer system of claim 35, wherein the recipient receives the image  
2 of the paper document and the multimedia annotation in the form of  
3 Multi-purpose Internet Mail Extension (MIME).
- 1 37. A method comprising:  
2 creating a document to be used with a multimedia annotation;  
3 creating the multimedia annotation;  
4 storing an image of the document and the multimedia annotation; and  
5 combining the document and the multimedia annotation to form a  
6 multimedia document.
- 1 38. The method of claim 37, wherein combining the document and the  
2 multimedia annotation comprises:  
3 creating a paper multimedia document by associating the multimedia  
4 annotation with the paper document; and  
5 creating an electronic multimedia document by associating the multimedia  
6 annotation with the image of the document.
- 1 39. The method of claim 38, wherein the multimedia annotation associated  
2 with the paper multimedia document is represented as a first bar code

- 3 printed on the paper multimedia document, wherein the first bar code  
4 encodes an audio sound.
- 1 40. The method of claim 38, wherein a location indicator of the multimedia  
2 annotation associated with the paper multimedia annotation is placed on  
3 the paper multimedia document, wherein the location indicator indicates  
4 where the multimedia annotation can be retrieved and played.
- 1 41. The method of claim 40, wherein the location indicator comprises a  
2 Uniform Resource Locator (URL), and a second bar code, wherein the  
3 URL is indicated in plain text, and wherein the second bar code  
4 represents the URL.
- 1 42. The method of claim 40, wherein the multimedia annotation comprises an  
2 audio sound, a video clip, and a combination of both the audio sound and  
3 the video clip.
- 1 43. The method of claim 38, further comprising sending the electronic  
2 multimedia document to a recipient, wherein the recipient receives the  
3 electronic multimedia document in the form of an attachment to an  
4 electronic mail.

## ABSTRACT OF THE DISCLOSURE

A method and apparatus for adding multimedia annotations to paper documents is disclosed. In one embodiment, a user generates a multimedia  
5 annotation to be combined to a paper document. The multimedia annotation is combined with the paper document to form a multimedia document. In another embodiment, an image of the paper document is generated. The multimedia annotation is combined to the image of the paper document to form an  
10 electronic multimedia document. The multimedia annotation is attached to the paper document in the form of plain text URL or bar code representing the URL. The electronic multimedia document is stored for later retrieval.



**FIGURE 1**

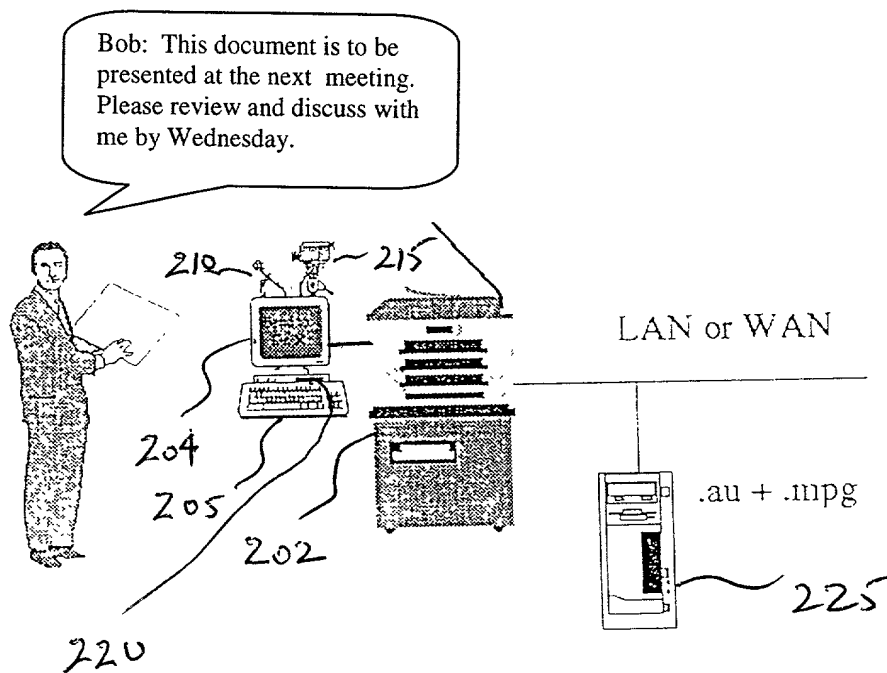
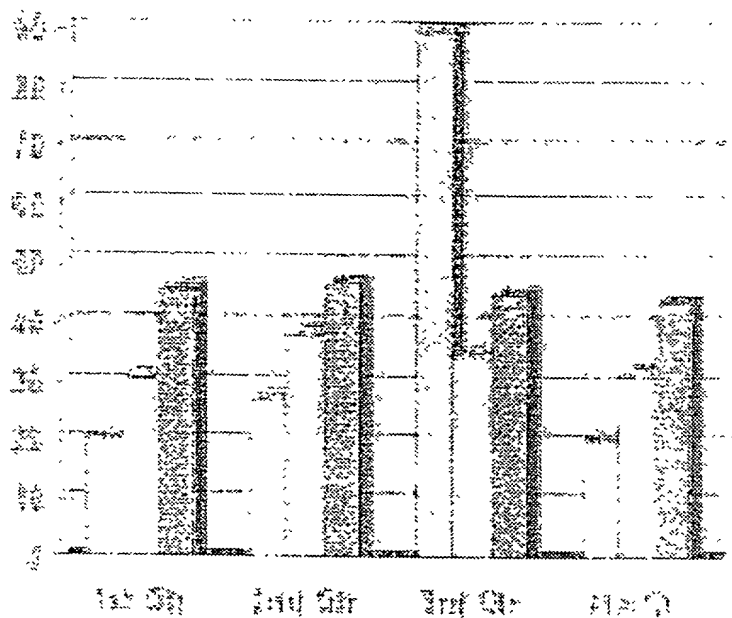


FIGURE 2

# We're Doing Great



**FIGURE 3**

405

From: hart@rsv.ricoh.com  
 To: hull@rsv.ricoh.com  
 Subject: Document with multimedia content

Jonathan:

I am sending you this document:  
[http://www.rsv.ricoh.com/mmdoc\\_421.html](http://www.rsv.ricoh.com/mmdoc_421.html)

FIGURE 4A

410

Document copied on MFP in front of CRG Fri Aug 15 14:43:00 1999  
 This document's IM address: [http://www.rsv.ricoh.com/mmdoc\\_421.html](http://www.rsv.ricoh.com/mmdoc_421.html)

412

<p>We're Doing Great</p>	<p>Things ending in "ings"</p>	<p>What I've Been</p>	
Data	Handling	Searching	Communications
OCR results	Print	Full text search	Email
Multimedia Annotation			Publish on the WWW

415

FIGURE 4B



005FE07E062560

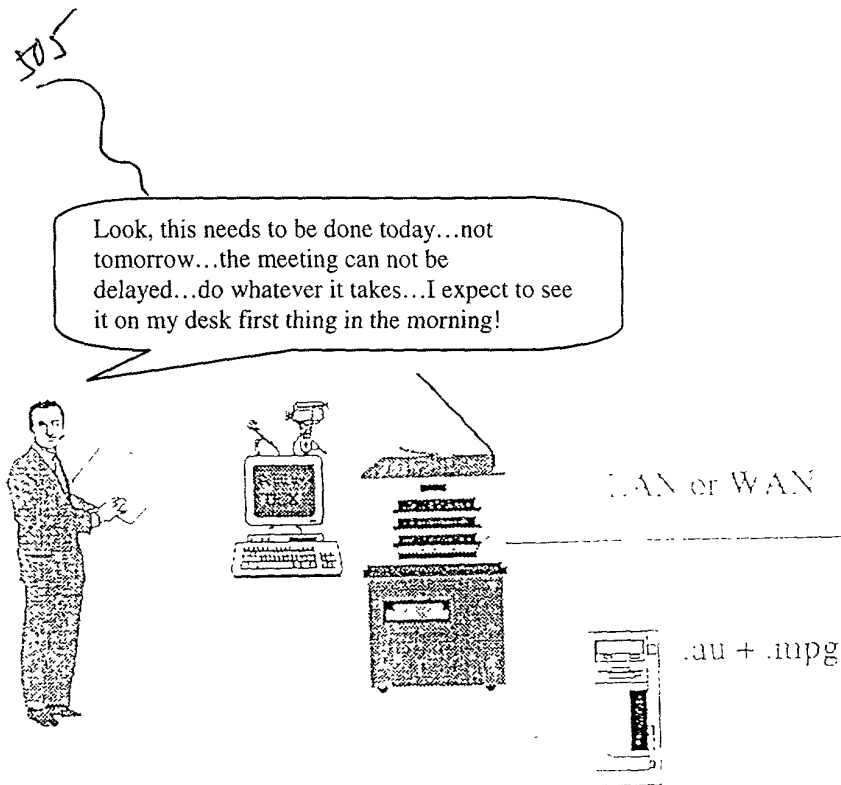


FIGURE 5

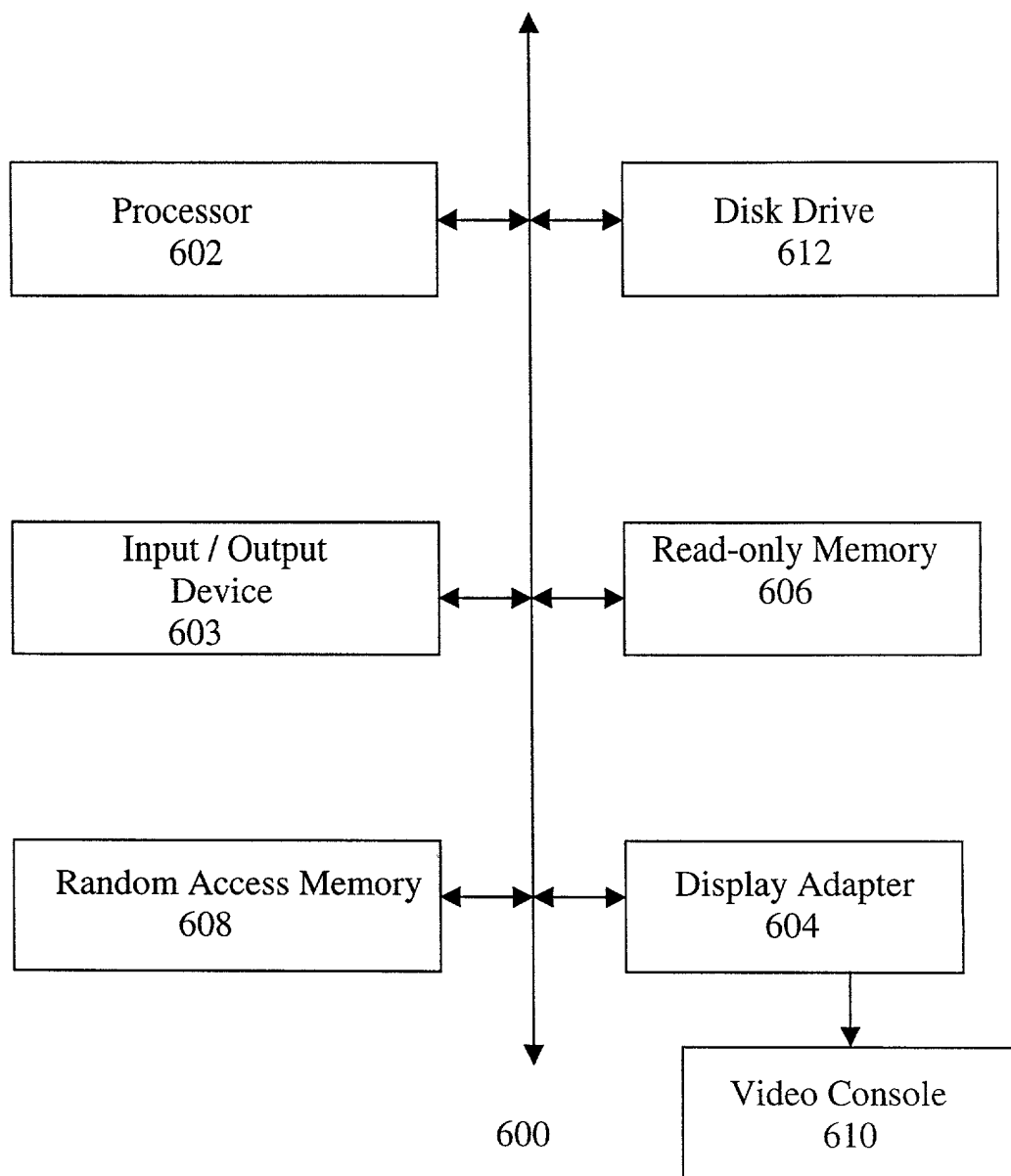


FIGURE 6

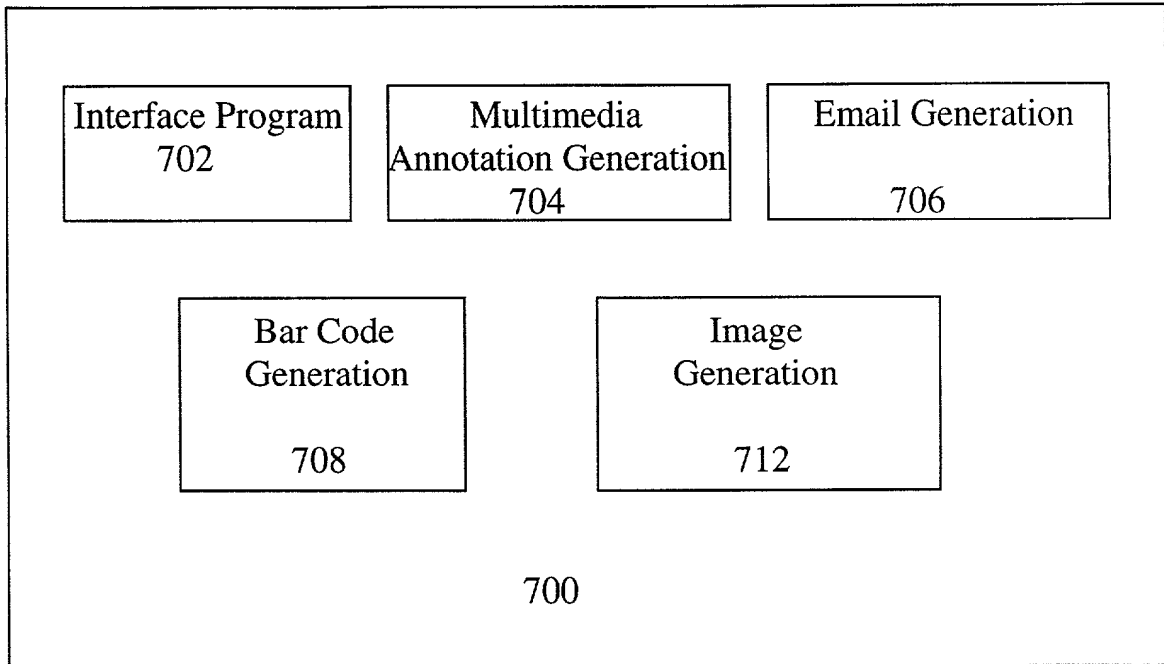


Figure 7

DECLARATION AND POWER OF ATTORNEY FOR PATENT APPLICATION

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below, next to my name.

I believe I am the original, first, and sole inventor (if only one name is listed below) or an original, first, and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

"MULTIMEDIA DOCUMENT ANNOTATION"

the specification of which

X is attached hereto.  
\_\_\_\_\_ was filed on \_\_\_\_\_ as  
United States Application Number \_\_\_\_\_  
or PCT International Application Number \_\_\_\_\_  
and was amended on \_\_\_\_\_.  
(if applicable)

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claim(s), as amended by any amendment referred to above. I do not know and do not believe that the claimed invention was ever known or used in the United States of America before my invention thereof, or patented or described in any printed publication in any country before my invention thereof or more than one year prior to this application, that the same was not in public use or on sale in the United States of America more than one year prior to this application, and that the invention has not been patented or made the subject of an inventor's certificate issued before the date of this application in any country foreign to the United States of America on an application filed by me or my legal representatives or assigns more than twelve months (for a utility patent application) or six months (for a design patent application) prior to this application.

I acknowledge the duty to disclose all information known to me to be material to patentability as defined in Title 37, Code of Federal Regulations, Section 1.56.

I hereby claim foreign priority benefits under Title 35, United States Code, Section 119(a)-(d), of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

09526031-031500

<u>Prior Foreign Application(s)</u>			<u>Priority Claimed</u>	
_____ (Number)	_____ (Country)	_____ (Day/Month/Year Filed)	Yes	No
_____ (Number)	_____ (Country)	_____ (Day/Month/Year Filed)	Yes	No
_____ (Number)	_____ (Country)	_____ (Day/Month/Year Filed)	Yes	No

I hereby claim the benefit under title 35, United States Code, Section 119(e) of any United States provisional application(s) listed below:

_____ (Application Number)	_____ Filing Date
_____ (Application Number)	_____ Filing Date

I hereby claim the benefit under Title 35, United States Code, Section 120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, Section 112, I acknowledge the duty to disclose all information known to me to be material to patentability as defined in Title 37, Code of Federal Regulations, Section 1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application:

_____ (Application Number)	_____ Filing Date	_____ (Status -- patented, pending, abandoned)
_____ (Application Number)	_____ Filing Date	_____ (Status -- patented, pending, abandoned)

I hereby appoint the persons listed on Appendix A hereto (which is incorporated by reference and a part of this document) as my respective patent attorneys and patent agents, with full power of substitution and revocation, to prosecute this application and to transact all business in the Patent and Trademark Office connected herewith.

Send correspondence to Michael J. Mallie, **BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN LLP**, 12400 Wilshire Boulevard 7th Floor, Los Angeles, California 90025 and direct telephone calls to Michael J. Mallie, (408) 720-8300.  
(Name of Attorney or Agent)

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Full Name of Sole/First Inventor Jonathan J. Hull

Inventor's Signature \_\_\_\_\_ Date \_\_\_\_\_

Residence \_\_\_\_\_ Citizenship \_\_\_\_\_  
(City, State) (Country)

Post Office Address \_\_\_\_\_  
\_\_\_\_\_

Full Name of Second/Joint Inventor Michael Baxter

Inventor's Signature \_\_\_\_\_ Date \_\_\_\_\_

Residence \_\_\_\_\_ Citizenship \_\_\_\_\_  
(City, State) (Country)

Post Office Address \_\_\_\_\_  
\_\_\_\_\_

Full Name of Third/Joint Inventor \_\_\_\_\_

Inventor's Signature \_\_\_\_\_ Date \_\_\_\_\_

Residence \_\_\_\_\_ Citizenship \_\_\_\_\_  
(City, State) (Country)

Post Office Address \_\_\_\_\_  
\_\_\_\_\_

Full Name of Fourth/Joint Inventor \_\_\_\_\_

Inventor's Signature \_\_\_\_\_ Date \_\_\_\_\_

Residence \_\_\_\_\_ Citizenship \_\_\_\_\_  
(City, State) (Country)

Post Office Address \_\_\_\_\_  
\_\_\_\_\_

## APPENDIX A

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## APPENDIX B

### Title 37, Code of Federal Regulations, Section 1.56

#### Duty to Disclose Information Material to Patentability

(a) A patent by its very nature is affected with a public interest. The public interest is best served, and the most effective patent examination occurs when, at the time an application is being examined, the Office is aware of and evaluates the teachings of all information material to patentability. Each individual associated with the filing and prosecution of a patent application has a duty of candor and good faith in dealing with the Office, which includes a duty to disclose to the Office all information known to that individual to be material to patentability as defined in this section. The duty to disclose information exists with respect to each pending claim until the claim is cancelled or withdrawn from consideration, or the application becomes abandoned. Information material to the patentability of a claim that is cancelled or withdrawn from consideration need not be submitted if the information is not material to the patentability of any claim remaining under consideration in the application. There is no duty to submit information which is not material to the patentability of any existing claim. The duty to disclose all information known to be material to patentability is deemed to be satisfied if all information known to be material to patentability of any claim issued in a patent was cited by the Office or submitted to the Office in the manner prescribed by §§1.97(b)-(d) and 1.98. However, no patent will be granted on an application in connection with which fraud on the Office was practiced or attempted or the duty of disclosure was violated through bad faith or intentional misconduct. The Office encourages applicants to carefully examine:

- (1) Prior art cited in search reports of a foreign patent office in a counterpart application, and
  - (2) The closest information over which individuals associated with the filing or prosecution of a patent application believe any pending claim patentably defines, to make sure that any material information contained therein is disclosed to the Office.
- (b) Under this section, information is material to patentability when it is not cumulative to information already of record or being made of record in the application, and
- (1) It establishes, by itself or in combination with other information, a prima facie case of unpatentability of a claim; or
  - (2) It refutes, or is inconsistent with, a position the applicant takes in:
    - (i) Opposing an argument of unpatentability relied on by the Office, or
    - (ii) Asserting an argument of patentability.

A prima facie case of unpatentability is established when the information compels a conclusion that a claim is unpatentable under the preponderance of evidence, burden-of-proof standard, giving each term in the claim its broadest reasonable construction consistent with the specification, and before any consideration is given to evidence which may be submitted in an attempt to establish a contrary conclusion of patentability.

(c) Individuals associated with the filing or prosecution of a patent application within the meaning of this section are:

- (1) Each inventor named in the application;
  - (2) Each attorney or agent who prepares or prosecutes the application; and
  - (3) Every other person who is substantively involved in the preparation or prosecution of the application and who is associated with the inventor, with the assignee or with anyone to whom there is an obligation to assign the application.
- (d) Individuals other than the attorney, agent or inventor may comply with this section by disclosing information to the attorney, agent, or inventor.